

Nutritional, chemical and sensory evaluation of newly formulated chocolate from whey protein

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The review indicates that all major areas of interest from nutrition and health stand point and explores many of the popularly held beliefs about chocolate. An exhaustive market survey was conducted for the well established branded chocolate, which indicates that chocolate has a special identity in the diet irrespective of race religion and age group of the consumer. The general tendency was that sugar patients and the children have shown reluctance due to fear of health problem such as tooth decay. Chocolate has been accused of causing headaches and migraines promoting heart diseases, being addictive, causing dental decay, being a potent allergen, causing outbreak of acne and unreasonably leading diabetics to abandon dietary common sense amongst many other diseases. It was also found that malnourishment is prevailing at much higher rate than it was expected. The present investigation was aimed at formulating 'Healthy chocolate' to combat malnutrition among children and diabetic patients. The chocolate was formulated using whey protein concentrate, skimmed milk powder and cocoa powder. The newly formulated chocolate was analyzed for physico-chemical and aesthetic properties supported by the sensory evaluation. The nutritional level was evaluated to establish its significance in feeding the malnourished children. The microbial status of the chocolate was used to predict shelf life of the product. Chocolate was analyzed for the selected nutrient parameters like moisture, total ash value, total sugar, total protein and total fat content. The product was also characterized by its vitamin (A, B₁, C, D, E) and minerals (Ca, Mg, Fe, K) content. The analytical parameters and nutritional status was correlated with specific health related problems. It indicates that newly formulated chocolate has better acceptability and can be recommended for the safe consumption by the patients. The sensory evaluation showed the increase in organoleptic properties on long storage. The consumer survey of the product indicates the good response to general acceptability of the product.

Key Words : Nutritional, Chemical and sensory value, Whey protein, Chocolate

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INTRODUCTION

The search for food has played major role in every process of construction of human society. Chocolate is considered as a naughty but nice food. It has always a mixed response due to high fat content but considered as a luxury food product (Bruinsma and Taren, 2000). Chocolate is a concentrated high energy foodstuff. It is a food with high nutritive value with three major components like carbohydrate, protein and fat. Plain chocolate is good source of minerals and micronutrients. Chocolate makers promote the use of chocolate as everyday food even though it is a food treat for special occasion. Cocoa and chocolate are mainly eaten because of their organoleptic

properties and not as a protein sources. However, it is said that chocolate can be eaten between the meals without reducing the proportional calorie intake. The fact of eating is essential to the maintenance of health determined by the biological considerations.

The refreshing quality of cocoa product is mainly due to two mild stimulants namely caffeine and theobromine (Chudle *et al.*, 2000). Both these components are neither cumulative nor habit forming but can stimulate blood circulation and excretion of urine. However, coca should be avoided by heart patients and highly nervous or dyspeptic patients. It may cause loss of sleep, palpitation and depression.

Generally, whole milk powder and non-fat milk powders are used in chocolate making. The milk powders act as an anti-blooming agent in the dark chocolates. Milk powders can be best exchanged with the cocoa butter in milk chocolates to

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